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09/712,654	11/14/2000	Ramesh Gupta	ECB-0010	4644

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EXAMINER

RIDLEY, BASIA ANNA

ART UNIT

PAPER NUMBER

1764

DATE MAILED: 08/22/2002

12

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/712,654

Applicant(s)

GUPTA ET AL.

Examiner

Basia Ridley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 June 2002.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 9-12 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-12 and 14-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

ok 2. Claim(s) 12 and 14-20 is/are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, claim(s) 12 recite(s) the limitation(s) "providing a reactor comprising at least one fixed catalyst bed", which includes one and more than one catalyst beds. While the original specification discloses a reactor comprising only one fixed catalyst bed (e.g. drawing), it does not disclose a reactor comprising more than one catalyst beds.

3. Claim(s) 9-12 and 14-20 is/are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant(s) regard(s) as the invention.

Claim(s) 9 recite(s) the limitation(s) "the flow", line(s) 10 and 19. There is insufficient antecedent basis for said limitation(s) in the claim(s).

In claim 9, line(s) 14, 19 and 21, --member-- should be inserted after "cage" for clarity and consistency.

Claim(s) 9 recite(s) the limitation(s) "the exit velocity", "the bypass flow" and "said bottom cage" line(s) 21. There is insufficient antecedent basis for said limitation(s) in the claim(s).

Claim(s) 9 recite(s) the limitation(s) "an increased amount", line(s) 13 and 27. Said claim(s) is/are indefinite as it is not clear what is the difference between various increased

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amounts recited in said claim(s). Suggested correction is to replace "an increased amount" in line(s) 27 with --the increased amount--.

Claim(s) 12 recite(s) the limitation(s) "the fixed catalyst bed" or "said fixed catalyst bed" or "said fixed bed", line(s) 4, 5, 12, 15-16, 21 and 22. There is insufficient antecedent basis for said limitation(s) in the claim(s). Suggested correction is --the at least one fixed catalyst bed--, --said at least one fixed catalyst bed-- and --said at least one fixed bed--, respectively.

Claim(s) 12 recite(s) the limitation(s) "the flow", line(s) 6 and 17. There is insufficient antecedent basis for said limitation(s) in the claim(s).

Claim(s) 12 recite(s) the limitation(s) "said feedstock", line(s) 6, 11, 17 and 22. There is insufficient antecedent basis for said limitation(s) in the claim(s).

In claim 12, line(s) 12, 18 and 20, --member-- should be inserted after "cage" for clarity and consistency.

Claim(s) 12 recite(s) the limitation(s) "the exit velocity", "the bypass flow" and "said bottom cage" line(s) 19-20. There is insufficient antecedent basis for said limitation(s) in the claim(s).

Claim(s) 12 recite(s) the limitation(s) "an increased amount", line(s) 10 and 23. Said claim(s) is/are indefinite as it is not clear what is the difference between various increased amounts recited in said claim(s). Suggested correction is to replace "an increased amount" in line(s) 23 with --the increased amount--.

Claim(s) 16 and 19 recite(s) the limitation(s) "said fixed catalyst bed". There is insufficient antecedent basis for said limitation(s) in the claim(s). Suggested correction is --said at least one fixed catalyst bed--.

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Claim (s) 17 is indefinite, because it is not clear how a method can comprise a separation device, as recited in said claim(s).

Claim(s) 18 recite(s) the limitation(s) "said separation device". There is insufficient antecedent basis for said limitation(s) in the claim(s).

***Claim Rejections - 35 USC § 102***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claim(s) 9-12 and 17-20 is/are rejected under 35 U.S.C. 102(b) as being anticipated by Beal et al. (USP 3,607,000).

Regarding claim(s) 9, Beal et al. disclose(s) a similar method for operating a fixed bed reactor, comprising:

- (a) placing a bypass apparatus (Fig. 7) within fixed catalyst bed in substantial alignment with flow of feedstock;
- said bypass apparatus comprising a cage member (84) comprising a first elongated hollow member having a top wall, side walls and a bottom wall, said cage member (84) having openings therein; and
- a second hollow elongated member (72) for bypassing an increasing amount of said feedstock through said second hollow elongated member (72) into said cage member as said top layer of said fixed bed fouls, said second hollow elongated member (72) being disposed within said cage member (84) and protruding through said top wall of said cage member (84) and wherein said second hollow elongated member (72) extends above said fixed catalyst bed through said cage member (84), said second hollow elongated member (72) being sized to regulate the flow of said

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feedstock into said cage member (84), said cage member (84) having a substantially larger cross-section than said second hollow elongated member (72) to effectively reduce the exit velocity of the bypass flow from said cage member (84) into said bottom cage of said fixed catalyst bed;

- (b) introducing said feedstock into said fixed bed of catalytic material, wherein a majority of said feedstock will flow through said top layer of said fixed bed of catalytic material (C13/L31-C16/L13); and
- (c) as said top layer of said fixed bed of catalytic material fouls, bypassing an increasing amount of said feedstock to said bottom layer of said fixed bed of catalytic material (C13/L31-C16/L13).

Regarding claim(s) 10-11, Beal et al. disclose(s) all of the claim limitations as set forth above, additionally the reference discloses the method for operating a fixed bed reactor, wherein:

- said feedstock is selected from the group consisting of liquid feed, vapor feed and mixtures thereof (C1/L2-6);
- said feedstock is selected from the group consisting of hydrocarbon feedstocks, chemical feedstocks, and mixtures thereof (C1/L2-6).

Regarding claim(s) 12, Beal et al. disclose(s) a similar method for extending operating life of a fixed bed catalyst reactor, comprising:

- providing a reactor comprising at least one fixed catalyst bed (Fig. 7);
- partitioning the fixed bed into a top layer and a bottom layer by placing a bypass apparatus within said fixed catalyst bed in substantial alignment with flow of feedstock (Fig. 7 and C13/L31-C16/L13);

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- said bypass apparatus comprising a cage member (84) comprising a first elongated hollow member having a top wall, side walls and a bottom wall, said cage member (84) having openings therein; and
- a second hollow elongated member (72) for bypassing an increasing amount of said feedstock through said second hollow elongated member (72) into said cage member as said top layer of said fixed bed fouls, said second hollow elongated member (72) being disposed within said cage member (84) and protruding through said top wall of said cage member (84) and wherein said second hollow elongated member (72) extends above said fixed catalyst bed through said cage member (84), said second hollow elongated member (72) being sized to regulate the flow of said feedstock into said cage member (84), said cage member (84) having a substantially larger cross-section than said second hollow elongated member (72) to effectively reduce the exit velocity of the bypass flow from said cage member (84) into said bottom cage of said fixed catalyst bed;
- introducing a feedstock into the fixed catalyst bed and as said top layer fouls bypassing an increasing amount of said feedstock to said bottom layer (C13/31-C16/L13).

Regarding claim(s) 17-20, Beal et al. disclose(s) all of the claim limitations as set forth above, additionally the reference discloses the method for operating a fixed bed reactor, wherein:

- the bypass apparatus (Fig. 7) further comprises a separation device (76) disposed above said second hollow elongated member (72);
- said separation device (76) is selected from the group consisting of caps, centrifugal separators and cyclones (Fig. 7);
- said fixed catalyst bed contains packing material for distributing particulates passing through said bypass apparatus (Fig. 7); and

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- said packing material is selected from the group consisting of catalyst particles, alumina balls, inert particles, inert packing and mixtures thereof (Fig. 7).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim(s) 14-1~~6~~<sup>5</sup> is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Beal et al. (USP 3,607,000).

Regarding claim(s) 14-15, Beal et al. disclose(s) all of the claim limitations as set forth above, but does not recited explicitly the specific diameters of the first and second members.

The specific diameters of the members are not considered to confer patentability to the claims. The precise diameters of the members would have been considered a result effective variable by one of ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed diameters of the members cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have routinely optimized the diameters of the members in the apparatus of Beal et al. to obtain desired bypassing of the top layer of the fixed catalyst bed (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).



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8. Claim(s) 16 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Beal et al. (USP 3,607,000) in view of Gupta (USP 4,313,908).

Regarding claim(s) 16, Beal et al. disclose(s) all of the claim(s) limitations as set forth above. Additionally, the reference discloses that feedstock is prevented from entering second hollow elongated member before upper layer of catalyst bed is deactivated by a rupture disk (C13/L31-44), but it does not explicitly disclose specific pressure drop for said member.

Gupta teaches a reactor comprising bypass apparatus, wherein said bypass apparatus comprises second hollow elongated member, and wherein:

- said second hollow elongated member has a pressure drop of about 5 to about 50 times greater than that of said top layer of said catalyst bed when said catalyst bed is a fresh catalyst bed (C3/L47-C4/L13).

Said reactor is an improvement of a reactor comprising bypass apparatus, wherein said bypass apparatus comprises a rupture disk. It allows for a low pressure drop bypass and several fold increase in on-time of the reactor, and at the same time increases system reliability over bypass systems comprising a rupture disk (C1/L45-59).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace second hollow elongated member comprising a rupture disk in reactor of Beal et al., with a second hollow elongated member having a pressure drop of about 5 to about 50 times greater than that of top layer of said catalyst bed when said catalyst bed is a fresh catalyst bed as taught by Gupta, for the purpose of providing a low pressure drop bypass and several fold increase in on-time of the reactor, and increasing system reliability.

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9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

***Response to Arguments***

10. Applicant's arguments filed on 3 June 2002 have been considered but are moot in view of the new ground(s) of rejection.

11. Applicant's arguments with respect to Beal et al. filed on 26 February 2001 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., allowing flow through the bypass apparatus even prior to fouling taking place) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (703) 305-5418. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode, can be reached on (703) 308-4311.

The fax phone number for Group 1700 is (703) 872-9311 (for Official papers after Final), (703) 872-9310 (for other Official papers) and (703) 305-6078 (for Unofficial papers). When filing a fax in Group 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Basia Ridley *BR*  
Examiner  
Art Unit 1764

BR  
August 13, 2002

*Marian C. Knode*  
MARIAN C. KNODE  
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